AMENDMENTS TO THE SPECIFICATION:

On page 10, please replace the paragraph spanning lines 6-17 with the following amended paragraph:

In studies comparing the sputum liquefying abilities of other thiol reducing agents, Trx demonstrated greater efficacy than the glutathione (GSH; reduced glutathione) reducing system. Since Trx has two redox active cysteine residues (dithiol), whereas GSH contains only one (monthiol), Trx may be more efficient in reduction of disulfide bonds in the gel-forming constituents of CF sputum. With regard to non-recycling mucolytic drugs, DTT was more effective on an equimolar basis than NAC (or MUCOMYST®~~Mucomyst©~~) solutions (Figs. 2 and 3; and data not shown). Efficacy of these compounds may again be dependent on the number of redox active cysteine residues, DTT having two, NAC only one. On the basis of these compaction assay measurements, enzymatic disulfide bond reduction using proteins, peptides or other compounds with dual redox active cysteines is expected to be a potent mucolytic strategy.

On page 21, please replace the paragraph spanning lines 18-29 with the following amended paragraph:

In one embodiment of the present invention, a protein suitable for use in the present invention has an amino acid sequence that comprises, consists essentially of, or consists of a full length sequence of a thioredoxin protein or any fragment thereof that has a thioredoxin active site as described herein. For example, any one of ~~SEQ ID NOs4-12~~SEQ ID NOs:4-12 or a fragment or other homologue thereof that contains a thioredoxin active site as described herein is encompassed by the invention. Such homologues can include proteins having an amino acid sequence that is at least about 10% identical to the amino acid sequence of a full-length thioredoxin protein, or at least 20% identical, or at least 30% identical, or at least 40% identical, or at least 50% identical, or at least 60% identical, or at least 70% identical, or at least 80% identical, or at least 90% identical, or greater than 95% identical to the amino acid sequence of a full-length thioredoxin protein, including any percentage between 10% and 100%, in whole integers (10%, 11%, 12%,...98%, 99%, 100%).